FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

SOURCE
VALIDATE
MARKET

USAID
FROM THE AMERICAN PEOPLE

WINROCK INTERNATIONAL

ANNUAL REPORT
USAID FEED THE FUTURE
ASIA INNOVATIVE FARMERS ACTIVITY
FISCAL YEAR 2017-2018

CONTENTS

CHAPTER 2

STRENGTHENING THE REGIONAL ENABLING ENVIRONMENT

MANAGEMENT

MESSAGE FROM THE PROJECT DIRECTOR

WILLIAM SPARKS

Project Director
USAID Feed the Future
Asia Innovative Farmers Activity

Standing in a pond outside of Kathmandu, Nepal earlier this year, I realized the essence the of Feed the Future Asia Innovative Farmers Activity. I was surrounded by research analysts, private sector entrepreneurs, a government official, and – most importantly – several farmers. In this pond I was surrounded by a subset of the greater agricultural innovation system. The role of our project was being realized as we brought these diverse, driven, and determined individuals together to ***source***, ***validate***, and ***market*** technologies that would change the lives of smallholder farmers throughout the region.

SOURCE

The technology under discussion on that day was a demand feeder. As explained on page 14 of this report, demand feeders help farmers to increase the efficiency of their two greatest costs: labor and fish feed. Our project sourced this innovation in Thailand – from a farmer no less – as part of our global sourcing program. We have linked with USAID's Innovation Lab network in the United States and conducted two regional technology competitions to identify the most promising technologies. As you will see in Chapter One of this report, our project has identified 13 technologies (from over 100 submissions) that range from mobile applications and satellite data analysis to pest exclusion netting and, of course, demand feeders.

VALIDATE

Once innovations are identified, our project activates our university network, led by Kasetsart University, to conduct a thorough technical validation. Kasetsart University and our university partners conduct desk research, laboratory analysis, and field testing to determine the effectiveness and efficiency of each technology. The project is fortunate to have technical experts in over 500 agriculture and aquaculture fields to provide in-depth review and analysis of each technology from the perspective of a smallholder farmer. Thus, we were all standing in a pond to measure the feed conversion ratio of native fish species using the demand feeder.

Joining us was Moushumi Shrestha of Shreenagar Agro Farm, a private sector firm selling fish feed in Nepal. From the first meeting about demand feeders, she was active in the validation and assessment of this technology. In this past year, the project added an intensive marketing analysis to be added to the technical validation. All technologies now undergo a business case review by a third-party private sector firm. Moushumi had prepared a business plan that embedded the dissemination of demand feeders with the sale of processed fish feed pellets, another new product still gaining adoption in Nepal.

MARKET

Moushumi is an entrepreneur at heart. In collaboration with the project, she reached out to two other firms and a university to found and register ShreeKisan Innovation Hub (SKIH) as an agricultural consortium as described on page 26. One of their first initiatives was to support the successful Nepal AgriTech International Expo and affiliated Agri Symposium to market the demand feeder and other technologies. To come full circle, SKIH has become one of the project's validation partners to review the business case for other emerging technologies that have been sourced by the project and validated by our university network.

Also in the pond was a representative from the Prime Minister Agricultural Modernization Project (PMAMP) to personally observe the demand feeders and review the results. We were all pleased to learn that because of these research findings, the PMAMP has fully endorsed this technology and will now be incorporating demand feeders into their demonstration farms (please see page 33 for more on this). From the beginning of our project, we have maintained a collaborative relationship with government officials, especially with regional bodies such as the South Asian Association for Regional Cooperation (SAARC) and the Asia Pacific Seed Association (APSA), to support the adoption and dissemination of technologies (for more on these, please see Chapter Two).

And, ultimately, all of this is for the farmer. I was pleased to talk to several farmers who demonstrated how they were benefiting from their own personal trials of the demand feeder. One of them invited me back to his farm where I was able to observe modifications he had made to the technology. Based on his experimentation and adaptation, our project now has two models of the demand feeder. It is appropriate to see that a technology that was created by a farmer in one country has been modified by a farmer in another country. Our project was able to play a critical role in making this connection through the sourcing, validation, and marketing of technologies.

I trust that you will enjoy reading this report. I am hopeful to share the insights I gained from standing in a pond in Nepal. I've since been fortunate to see similar activities this past year in Bangladesh, Cambodia, Laos, Nepal, Myanmar, Thailand, and Vietnam. It's been a busy and prosperous year, and we're glad to share our experiences in sourcing, validating, and marketing technologies that benefit smallholder farmers throughout South and Southeast Asia.


AEROROOTS
Aeroponic Growing System
SUNFARMER
Solar Irrigation System
GHAM POWER
Solar Microgrid
NEPAL
BANGLADESH
GRAMEEN INTEL
Soil Master
MPOWER
Geodata to Control Blight
FARMTECH CO
Soybean and Rice Dryer
RHINO RESEARCH
Drying Beads
AMAR DESH AMAR GRAM
eShop Platform
MYANMAR
THAI CHAROEN THONG KARNTOR
Pest Exclusion Net
ENERGAIA
Spirulina System
THAILAND
MR.THIEMSAK
Demand Feeder

CHAPTER 1

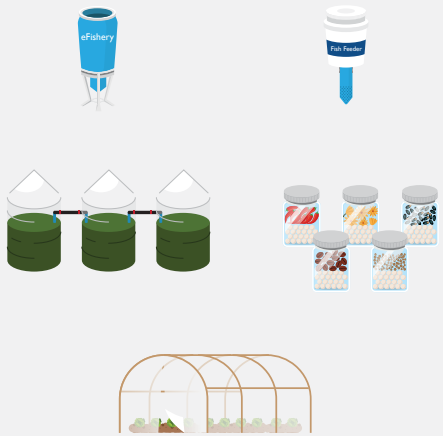
BRINGING INNOVATIONS TO SMALLHOLDER FARMERS

13 INNOVATIONS
6 COUNTRIES

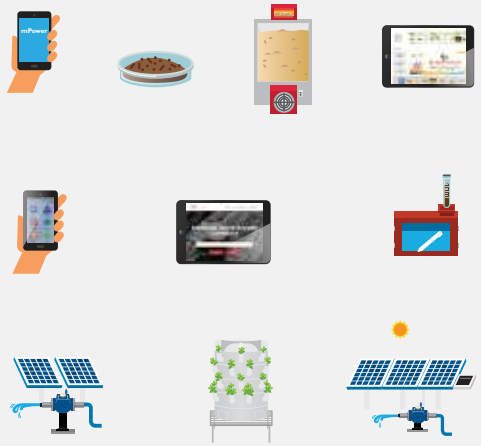
BRINGING INNOVATIONS TO SMALLHOLDER FARMERS

SOURCE

Tech4Farmers 1.0



Tech4Farmers 2.0



Modified

Technology modified to pass validation

Hold

Validation not completed for technology

eFishery | Pest Exlusion Net | Demand Feeder | EnerGaia | Rhino Research | mPower | Sun Farmer | Farn Tech Co

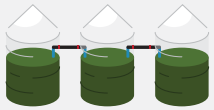
VALIDATE

Pass

MARKET

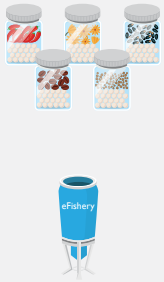
Expansion

Innovator expanded into new country



License

Technology license issued in new country



Linkage

Technology distribution established in new country

AeroRoots | Gham Power | Amar Desh Amar Gram | Nutrition Technologies | Grameen Intel | AgUnity | KIU Asia

Component 1 : Overview of Tech4Farmers Asia Challenge

The Asia Innovative Farmers Activity conducts global outreach activities to source promising innovations. The Tech4Farmers Challenge is the flagship outreach activity. After being selected, each innovation participates in a rigorous validation process, led by Kasetsart University, to ensure viability within rural Asian communities. The project then works with private sector actors and local partners to bring innovations to rural markets and to scale adoption of these innovations across regional networks.

Source. The Tech4Farmers Challenge, which has been the project's main sourcing channel, has identified over 100 innovations over the life of the project and has generated over 2 million impressions across social media platforms. From this outreach, the project has sourced 15 technologies to validate for impact on smallholder livelihoods.

Validate. In this last year, the project validated eight technologies identified in the latest Tech4Farmers Challenge. The validation process, building on the success of technical validation, was expanded this year to include a market assessment. Four private sector firms were contracted to provide a market analysis of risks and opportunities for the manufacturing, distribution, and retail of each technology.

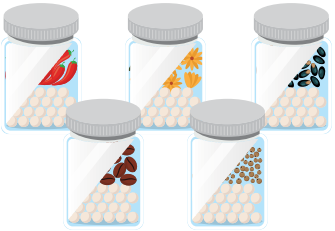
Market. This combination of technical and market analysis provided greater insight and guidance as to the type of market support provided to each innovation. The project supported the expansion of technologies by expanding consumer awareness through outreach campaigns, facilitating licensing contracts with local distributors, and supporting the arduous task of direct expansion into a new country.

This section describes each of the technologies, the primary validation findings, and the project's support to expand the innovation into new markets in rural communities throughout Asia.

Rhino Research

Drying Beads are modified ceramic materials by Rhino Research that absorb and hold water molecules in their microscopic pores. In humid Bangladesh, finding reliable vegetable seed can be a challenge — a situation that can ruin a crop before a farmer's hard work even begins. Bangladesh seed companies are now rapidly adopting this technology to improve seed germination and plant vigor through improved seed processing and storage. Drying Beads are a reusable technology that helps seed companies provide farmers with higher quality seed, improves the local seed industry, and helps farmers maximize the potential of their own hard work.

The project facilitated the formation of a licensing arrangement in Bangladesh. Metal, Inc. is now the sole distributor of Drying Beads in Bangladesh. They supply both small and large organizations, including an order of 1.5 tons to Lal Teer Seed Limited. Lal Teer has been transforming their production line to dry vegetable seeds using this technology. They have also trained over 700 contract seed farmers on how to use the Drying Beads technology. The project worked with Lal Teer to establish information sites at 200 retail locations to directly educate farmers about the use of drying beads to improve seed quality and performance. Tens of thousands of farmers and their families throughout Bangladesh are now benefiting from and generating more demand for these quality seeds. Lal Teer intends to convert their production for all high value crop seeds using this technology which will help them comply with international trade standards, boosting quality seed marketing not only in Bangladesh, but also across the region.



"This year, more than 200 tons of vegetable seed have been dried and stored with drying beads — helping an estimated 100,000 farmers in Bangladesh access quality seed."

Korshed Chowdhury, Lead Trainer, Ispahani Agro Limited

EnerGaia

EnerGaia has established a closed production system that maximizes the production of spirulina – a superfood of blue-green algae that converts greenhouse gases into nutrition and protein. Spirulina has been part of the human diet for thousands of years but only grows naturally in a few locations. EnerGaia's scalable system transforms unproductive urban and rural locations into a revenue stream for households while also improving the intake of protein and other critical nutrients. EnerGaia supplies both the inputs and market linkages to make their system profitable and simple for households to adopt.

In the prior year, the project supported the expansion of EnerGaia into Bangladesh. This year, the project supported the establishment of a laboratory and production facilities at both Sher-e-Bangla University and Bangladesh Agricultural University. To inaugurate this milestone, the project supported a media event for stakeholders and the wider press to celebrate the launch of the first spirulina production tanks in Bangladesh. This lab and farm facility are also serving as valuable learning facilities for several of the university's microbiology students. The project has been actively working with EnerGaia and local financial institutions to establish a credit mechanism to provide loans and scale up the number of households that can acquire the necessary equipment.

- Sher-e-Bangla University: 96 tanks and 2 fulltime employees
- Bangladesh Agricultural University: 300 tanks and 2 fulltime employees

Demand Feeder

Invented by a Thai innovator, the demand feeders are a low-cost and time-saving solution to ensure that fish are fed at regular intervals while preserving pondwaters by minimizing the impact of uneaten fish pellets. Typically, aquaculture farmers must walk around ponds multiple times each day to throw fish feed into the water. Predicting exactly when fish will eat is influenced by many conditions and often results in wasted fish pellets that disintegrate in the water. A demand feeder is filled with fish pellets and floats in the ponds. Fish soon learn the location of the demand feeders and eat whenever conditions are appropriate.

The project built on initial demonstration visits to Nepal by working with a local private sector aquaculture firm, Shreenagar Agro Farm, to transfer the technology from Thailand. Working with the project and a local university, Shreenagar tested the original PVC-tube model and has also created a metal-rod model. This technology has been shared with leading aquaculture farmers who have since communicated the demand feeders to other farmers. Shreenagar has bundled the demand feeders with the sale of fish feed to encourage the adoption of factory-produced fish pellets over traditional fish feed of smaller fishes that can lead to over-harvesting in local waters.

"The demand fish feeder is an innovative technology and very helpful for the production ponds of aquaculture farmers. It's helping me to reduce labor costs and to improve efficient feeding."

Punney Chaudhary, Nepal fish farmer

Pest Exclusion Nets

The pest exclusion net is a protection barrier for plants that can reduce the outbreak of aphids and other insects that harm crops. Pest exclusion nets come in different mesh sizes to work with a variety of crops to ensure the appropriate combination of sunlight and protection. By using pest exclusion nets, farmers reduce the indiscriminate use of pesticides which saves money and reduces consumption of dangerous chemicals and potential run-offs into water systems. Farmers using pest exclusion nets have shown a reduction in pesticides, depending on the crop, from 65-98% while increasing overall profit margins three-fold due to less expenses and higher process for improved quality.

The project has been forming market linkages between the primary net supplier in Thailand to distributors and retailers in the region. In Cambodia, the project worked with a private sector firm, Khmer Modern Farm, to import the materials and to expand local adoption. In Nepal, the project worked through an agro-input distributor, Modern Agro Technology (MAT), to conduct marketing outreach to farmers. MAT conducted training and demonstrations to representatives from 16 retail outlets who have, in turn, conducted outreach to over 1,800 farmers. The initial sales data is still being collected, but over 300 initial purchases have been made. Marketing and outreach is still underway, and MAT is projecting over 1,000 purchases by the end of the year.

"I can grow Pak Choy in the summertime under the PEN. It is really good for me because most of the farmers cannot grow them. I can earn more money from this opportunity."

Phai Sila, farmer from Battambang, Cambodia

eFishery

eFishery, a firm based in Indonesia, has expanded the Internet of Things (IoT) to create an automated feeder to adjust quantity of fish feed, program feeding times, and be controlled through a smartphone app or laptop. The feeder comes in two sizes for shrimp and fish, 12kg and 65kg, which can cover ponds up to 100 square meters. Customers can purchase the equipment or select a rental option. The company is currently developing a fish sensor, based on feedback from project partner Kasetsart University, to sense the appetite of fish and to create an even more responsive feeder. As feed costs can amount to as much as 80% of aquaculture expenses, the automated feeder can ensure that farmers are effectively converting feed into fish growth.

eFishery had already undergone a technical review based on field inspections by Kasetsart University prior to this year. Kasetsart had provided specific technical considerations to make the product commercial ready. This last year, eFishery modified the automated feeder and invited Kasetsart for a second technical review.

The technical team reviewed the enhancements and endorsed the automated feeder. The project worked with eFishery to establish ACI as a sole distributor and is now working to enact a marketing plan to generate sales in the busy Bangladesh aquaculture sector.

"The eFishery auto feeder helps lighten the workload to feed the fish. It is working automatically so I can save more time to take care of another business."

Mr. Dakuna, fish farmer in Indonesia

Gham Power

Gham Power develops solar microgrids and commercial off-grid systems for rural areas in Nepal. About 1.3 billion people, 20% of the world's population, do not have access to electricity. In Nepal, around 7 million people (24% of population) live without any access to electricity and rely on expensive kerosene. Those who are grid-connected face an average of 16 hours per day in blackouts. Gham Power is developing a variety of energy solutions through affordable pay-as-you-go models. These energy solutions include Rural Microgrids, Commercial & Industrial systems, and Productive End Use Systems to meet the needs of both households and companies.

Kasetsart University conducted a comprehensive technical review by assessing active operations on farms in rural Nepal. Kasetsart concluded that the energy solutions were reliable and effective towards improving the productivity and efficiency of farm operations. The project has engaged ShreeKisan Innovation Hub (SKIH) to conduct a market analysis of the innovation. The project collaborated with local partners to form SKIH, and this last year SKIH registered as an agtech firm in Nepal. They have come full circle in providing support back to the project by conducting a review of the customer base and market potential of Gham Power in Nepal and the region.

" Using the GhamPower system has helped me save money on my energy bill." Mr. Rana was paying $180 per month for energy, but with the Gham Power system he has reduced his bill to $93 per month. "

Shovran Rana, fish farmer in Kanchanpur, Nepal

SunFarmer

In a Rent-to-Own model, farmers do not pay a down payment but only monthly payments for a period of 3 years. Farmers have the option to return the system within the first year if they are unsatisfied. After completion of payments, ownership is transferred to the farmer.

Most farmers, lacking electricity, can't adequately irrigate their fields during the long dry seasons. SunFarmer installs durable solar-powered water pumps that are made available to farmers through affordable rent-to-own financing models over a three-year period. The SunFarmer equipment and financing program allows farmers to pay for irrigation in affordable monthly installments. As solar greatly reduces need for traditional fuel, farmers can dramatically reduce their costs while minimizing environmental consequences.

Kasetsart University conducted a technical assessment of SunFarmer. The project worked with an India-based firm, Unlock, to conduct the market analysis. From a technical perspective, SunFarmer was endorsed by Kasetsart University as an effective technology that adjusted the volumes of water according to the land size and type of crop. From the market perspective, SunFarmer is providing a product that is in high demand at a price structure that is viable for their customer base. SunFarmer has successfully engaged financing partners and technical engineers to provide the rent-to-own financing models and aftermarket support.

Amar Desh Amar Gram

Farmers struggle to find premium markets. Amar Desh Amar Gram (ADAG) is the first innovation of its kind in Bangladesh that takes computers and web access to the lowest income group and empowers them with new market possibilities. ADAG compiles orders from urban markets and aggregates production from farmers to fulfill orders. The innovation helps urban consumers obtain high quality food while ensuring a higher price to producers. ADAG puts an emphasis on engaging underpriviledged women to supply through this channel as they are often limited in direct marketing activities.

As this innovation is primarily an online innovation, the project collaborated with a Bangladesh firm, Edge Consulting, to assess ADAG's operations, market potential, and impact on the farmer. Both farmers and consumers have expressed satisfaction with ADAG services. The review noted that as most farmers do not have access or ability to use online software, ADAG employs representatives to call producers to coordinate fulfillment orders. Likewise, customers are showing a preference to call rather than use the website. This further increases staffing needs, reduces profitability, and limits expansion growth. ADAG was an intial entrant into the e-grocery space, but other organizations are streamlining and advertising competing websites. ADAG may need to specialize or invest in expansion; however, the innovation has proven effective.

"It is impossible for me to source products directly from rural producers, given I am a city dweller with a full time job. Now I can get fresh produce from the farmer directly, literally at my door step."

Mr. Sohel, ADAG urban consumer

mPower

"This season I only sprayed 5 times. This saved me about BDT 1500 per spray ($110 per hectare). This money is spent on my children's wellbeing and other family expenses."

Abdul Malek, farmer

By the time blight is recognized, an entire crop – and farmers income – can be ruined. mPower's geopotato service provides an early warning system for late blight attacks. mPower operates weather stations, collects satellite images, and carefully analyzes weather conditions with other environmental factors to determine the possibility of blight. Farmers receive text messages with early warnings, up to three days ahead of the attack, and recommended interventions that include type and volume of fungicide.

The project collaborated with a Bangladesh firm, Edge Consulting, to conduct a review of mPower operations. Edge confirmed mPower's collaboration with the Bangladesh Meteoroligical Department to generate timely and helpful information. Text messages are sent in Bangla with simple language for farmers with basic literacy and simple phones. Edge made recommendations for how mPower's algorithym could be enhanced with past performance results, but overall confirmed the effectiveness of their business model.

Farm Tech

"Labor is my biggest issue. I find it difficult to bring laborers for helping me drying the paddy. This dryer can help me a lot."

Pauk Sa, farmer and FarmTech customer

Up to 30 percent of a farmer's harvest can be lost or susceptible to deadly toxins due to poor drying practices and the rainy season. Rice farmers normally sun-dry on any open space, including roads, which can further reduce quality through uneven drying, broken grains, and introduction of contaminates. FarmTech, based in Myanmar, builds large flatbed dryers that can dry up to nine tons in a single load. Each load is approximately 400 baskets of paddy, and two loads can be operated in a single day. FarmTech identifies medium-sized enterprises that grow their own rice and want to provide drying services to farmers. These enterprises can choose to just provide the drying as a service or operate as an offtaker to aggregate for larger buyers.

Kasetsart University conducted the technical review of the dryers. Their analysis of operations at three different site visits confirmed a consistent lowering of moisture content from 20 perecent down to 13 percent. Kasetsart also provided recommendations for using the dryer for other crops, such as corn and beans. The project worked with an Indian-based consulting firm, Unlock, to conduct a market analysis. The current business model of working through a small miller requires near fulltime operations within the short time season of harvest. The time per load (8 hours) may not be sufficient to meet the concentrated demand within the short harvest season. FarmTech will likely need to partner with a finance provider to help additional small and medium enterprises to afford the initial purchase of the dryer.

Nutrition Technologies

Producing fish feed without over harvesting local water sources remains a challenge as market systems scale up aquaculture industries. Further, the price of supply fish as a protein source for fish feed can fluctuate over a year and cut into the slim margins of fish producers. Nutrition Technologies Limited (NutriTech) replaces the harvesting of fish with black soldier flies. NutriTech has established a system whereby farmers can grow larvae, convert it into larvae meal, and then add it as a supplement to various types of feed, including fish, shrimp and poultry. NutriTech is currently finding markets for all black solder fly production byproducts to become a 100% waste-free technology.

The technical validation was conducted by Kasetsart University. The analysis concluded that the larvae supplement is a high quality source of protein (±43%) and crude fat (±25%), two important ingredients for inducing weight gain in fish and animals. Feed trials confirmed the effectiveness as larvae-supplemented feed as being a suitable alternative to fish meal. The project collaborated with a local consulting firm, M-Cril, to conduct a market assessment. Findings were positive, including the calculation of average price of larvae-based feed at $1,250 per metric ton as compared to $1,800 for traditional fish feed.

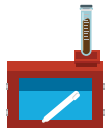
Fast Growing Larvae: A single female produces 600 eggs. A single growing station produces over 11 million eggs daily (467 grams), and larvae – which consume organic waste – grow to 15,000 times their size in just two weeks.

AeroRoots

AeroRoots is a Nepal-based agriculture company that produces an automated production system that greatly reduces water consumption and is completely free of all pesticides. Their Aeroponic technology was pioneered by NASA to use minimal inputs to produce fruits and vegetables that are fresh, organic, nutritious, and pesticide-free. Aeroponic requires no soil and delivers nutrients directly to the roots using high pressure mist, greatly reducing water consumption. There is also no tilling, soil preparation, or weeding – increasing the profitability of farmers. The AeroRoot system is currently employed for sixteen highly nutritious vegetable varieties.

Kasetsart University conducted a technical review of AeroRoots by examining their three core products. The AeroRoof is a barrell-shaped standalone portable unit with 60 grow holes. This compact unit is designed for balconies and small roodtops. The AeroGarden is a slightly larger four-drum interlinked system for wider spaces. The AeroCommercial is a scaleble production system for full farm operations. The analysis determined that all three models were effective in generating organic, quality products. The project is currently reviewing the market opportunities for this technology to determine the economic viability.

High tech, high yield farming. Technical assessments revealed that the Aeroponic system generated higher yields over traditional farming: red kale 65%, bell pepper 53%, squash 50%, cherry tomatoes 35%, parsley 21%, basil 19%.



Grameen Intel

Soil, next to water, is the most critical component of a highly productive farm. Frequently, farmers are left to guess as to which nutrients and fertilizers to add to the soil. Determing the appropriate proportion of nitrogen, phosphorus, potassium, and other nutrients for each crop in a timely and cost-effective manner remains outside the capability of most smallholder farmers. Grameen Intel, a partnership between two companies working to improve rural productivity, has developed Soil Master, a tool to provide farmers with an opportunity to test the nutrients of their soil. Soil Master empowers farmers with immediate results without having to travel to lab testing sites, waiting months for results, or paying exorbitant costs. The device informs a farmer of the chemical composition of the soil and recommends the type and quantity of fertilizers to apply.

In partnership with Syngenta, the project invited the technical team of Grameen Intel from Bangladesh to the testing laboratories at Kasetsart University in Thailand. Together, the two teams conducted validation testing. Multiple testings under a variety of conditions showed some inconsistencies in the accuracy of the device. Althouth the device was able to provide some general guidance, it could not measure accurately enough to make an accurate soil fertility assessment for both pH and NPK nutrients. Thus, the quality of fertilizer recommendations was negatively impacted. Specific recommendations for the device have been documented and are currently being reviewed for the next iteration of the technology.

Additional applications: Grameen Intel seeks to provide multiple recommendation apps from the single device. This includes a seed recommendation app, a pesticide application guidance app, and a market support app to link farmers to profitable distribution channels.

SUCCESS STORY

Entrepreneur Accelerator Immersion Workshop

The Tech4Farmers Challenge 2.0 identified eight innovations to scale across South and Southeast Asia. The leaders of these technologies were invited to an Entrepreneur Accelerator Immersion Workshop in Singapore. Winrock International provided their lead innovation trainer from the Arkansas Regional Innovation Hub in the United States. The dynamic trainer provided an in-depth two-day strategy session on assessing company business plans, reviewing risks, and selecting the most viable paths forward for growth and sustainability. Each entrepreneur completed a lean canvas map to further adjust their unique value proposition, key success metrics, distribution channels, and core cost structures. The session ended with marketing pitch practices that included peer feedback and expert consultation.

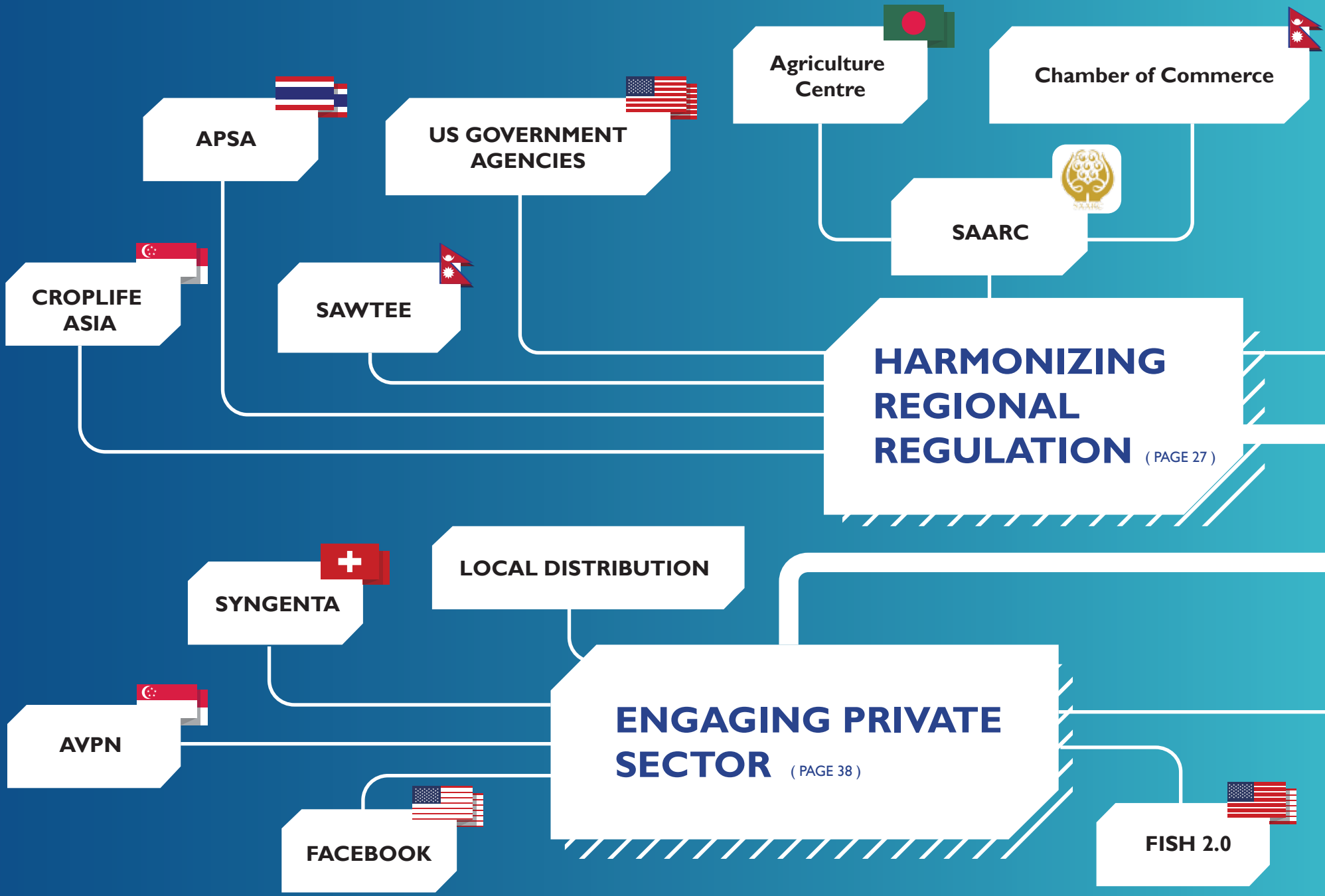
The training session was followed by two days of behind-the-scenes networking with technology organizations based in Singapore. These organizations included Facebook, Syngenta, CropLife Asia, and Citizen Farm. Innovators were able to get feedback on their individual technologies, discover how other firms navigated the tech ecosystem, and learn how they could partner with leading firms in the industry. Innovators were also introduced to impact investors to learn the best ways for attracting capital.

Attendees used the immersion experience of the interactive strategy session and an intimate networking program to further enhance their nascent technologies. Following the event, many of the innovators made changes to their strategic growth plans and enrolled in the impact investor network to attract much needed funding for continued expansion into the region. The project was able to use the immersion workshop to further understand the individual needs of each innovator so as to determine the best type of assistance to provide in technical validation, market analysis, and ongoing spot support.

" On this entrepreneur training tour, we are bringing some of the biggest and best tech firms to work with our innovations so that our winning entrepreneurs get the knowledge, resources, and network they need to scale up solutions to benefit smallholder farmers throughout South and Southeast Asia. "

William Sparks, Project Director,

USAID Feed the Future Asia Innovative Farmers Activity


APSA
US GOVERNMENT AGENCIES
Agriculture Centre
Chamber of Commerce
SAARC
CROPLIFE ASIA
SAWTEE
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SYNGENTA
LOCAL DISTRIBUTION
AVPN
ENGAGING PRIVATE SECTOR (PAGE 38)
FACEBOOK
FISH 2.0

CHAPTER 2

STRENGTHENING THE REGIONAL ENABLING ENVIRONMENT

BIMSTEC

SHREE KISAN INNOVATION HUB

AGRIBYTES INNOVATION HUB

FEED THE FUTURE ASIA INNOVATIVE FARMERS PROJECT

STRENGTHENING REGIONAL NETWORKS (PAGE 24)

AVPN

INVESTORS

AQUASPARK

HURREDO INNOVATION HUB

Component 2: Strengthening Regional Networks

Overview

The project is strengthening a Regional Agricultural Innovation System that includes a broad community of people from many disciplines and occupations (researchers, engineers, entrepreneurs, farmers, designers, agricultural input dealers, investors, NGO staff) willing to work together towards the adoption and commercialization of effective technology and innovative practices to raise incomes for farmers across South and Southeast Asia. The Regional Innovation System consists of a Regional Innovation Hub, housed at Kasetsart University in Thailand, and national-level Agricultural Innovation Hubs in Bangladesh, Cambodia, and Nepal. The diversity of these communities is critical to support the application of technologies from other fields to the needs of agriculture.

SUCCESS STORY

SHREE KISAN INNOVATION HUB

Shree Kisan Innovation Hub facilitated the Nepal AgriTech International Expo 2018 in Kathmandu as co-organizer from February 15-18, 2018. The event brought together international exhibitors from 15 countries to showcase innovations for over 50,000 visitors during the four days. Shree Kisan Innovation Hub provided on-sight training to 410 participants on Demand Fish Feeders and Pest Exclusion Nets. Shree Kisan Innovation Hub identified experts (Mr. Khyam Narayan Poudel for Pest Exclusion Net and Mr. Sailesh Gurung for Demand Fish Feeder) to deliver the structured training sessions during that event. The response to these technologies from the visitors was overwhelmingly positive.

Within the expo, Shree Kisan Innovation Hub also coordinated Agri Symposium 2018. The symposium functioned as a knowledge-sharing and training event where various sessions on prosperous farmers, climate smart agriculture, goats for growth, and innovative technologies for farmers were conducted. The symposium was a platform where all core market actors – farmers, various companies involved in agriculture, and government officials – got a chance to come together and take part in knowledge sharing sessions. Over 1,300 people attended the four sessions. The event was also broadcast live through Krishi Television, 67 local FM radio stations of Janata Media Network, and posted on YouTube. In total, the sessions reached over 40,000 people.

"Shree Kisan Innovation Hub is going to revolutionize Nepalese Agriculture by sharing information about innovative technologies in easy-to-understand terms which will motivate youth and women to be more involved in agriculture and help farmers to increase productivity and reduce drudgery."

Moushumi Shrestha, Founder of Shree Kisan Innovation Hub

PROMOTING LOCAL INNOVATIONS

Shree Kisan Innovation Hub conducted an Innovation Challenge Call to identify and bring exposure to local innovative ideas from many interested people and organizations. Through this process, it identified ten local innovators with the greatest potential to impact agriculture and honored them during the AgriTech International Expo 2018. They produced a marketing piece of each innovation and disseminated these through print and online media.

AgriBytes Innovation Hub

AgriBytes was formed in Bangladesh through the support of the project. The network of innovators, university researchers, and input suppliers conducted several workshops to share the latest technologies in agriculture. Three of the technologies selected through the Tech4Farmers Challenge 2.0 were featured at these workshops. These Bangladesh-based technology firms were Amar Desh Amar Gram, mPower, and Grameen Intel. These workshops formed and strengthened critical research and market linkages that have further expanded the development and adoption of technologies.

Seeking to sustain the sharing of valuable information from the workshops, AgriBytes launched an online social media campaign and a traditional newsletter for those individuals with no access to online information. Both of these channels convey critical information about new innovative farming methods and technologies to address local agricultural challenges. AgriBytes also published an innovation catalogue of breakthrough innovations and are working with a wider network of entrepreneurs and input suppliers to promote this catalogue widely to encourage upgrading and adoption through Bangladesh.

HURREDO Innovation Hub

The HURREDO Innovation Hub was formed in Cambodia through the support of the project. Although the creation of a community of practice was successful through the innovation hubs in Nepal and Bangladesh, the innovation hub in Cambodia struggled to meet development milestones. The local leaders selected to facilitate this initiative were unable to take time away from their primary roles and functions to adequately support the establishment of the innovation hub. Thus, mid-way through the year, the project and the local implementers reached a joint decision to discontinue the development of the innovation hub in Cambodia. With the project not receiving any additional funds, the decision was made to not attempt to develop the innovation hub through another local partner.

Component 3: Harmonizing Regional Regulation

Overview

A strong business enabling environment is critical to the adoption of technologies, particularly for often under-served rural communities. The project partners with organizations and agencies to increase market access and opportunities for adoption of new technologies. For example, the project formed a partnership with the Asia-Pacific Seed Association to improve rural access to critical seed varieties that are resilient to difficult climate conditions. The project continues collaborating with regional bodies and government agencies to reduce trade barriers and facilitate cross-border linkages. In addition to trade and regulation issues, the project is also working in the financial sector to increase liquidity for rural communities seeking to acquire new technologies that improve livelihoods.

SUCCESS STORY

Access to seeds with APSA partnership

Improved seed varieties are, collectively, a critical technology for the increased yield and profitability of smallholder farms. Therefore, the project has collaborated with the Asia Pacific Seed Association (APSA) to increase the adoption of improved seed varieties in the region. On March 29, 2018, the project and APSA signed an agreement to facilitate access to and adoption of improved seed varieties through outreach activities that engage agricultural partners, academic institutions, government agencies, and private sector firms.

This collaboration contributed to the successful Phytosanitary Expert Consultation of the Asia Pacific Region that was conducted in Bangkok on August 29-30, 2018. The event facilitated engagement between international seed organizations and national plant protection officers to identify methods for improving the transfer and import of improved seed varieties. Improved practices that were discussed included the adoption of ISPM 38, an international standard that has been endorsed by the International Seed Federation. National plant protection officers shared their systems on reviewing and approving new seed varieties, and discussions were held for standardizing a common research platform.

As defined in the agreement and building on the success of this event, the project will continue supporting APSA and the regional transfer of seed technology by engaging and supporting national plant protection officers in the region. APSA and the project are currently planning regional training workshops to further disseminate best practices that will improve government procedures and, ultimately, expedite the availability of improved seed varieties to smallholder farmers.

ADDRESSING SAARC TRADE BARRIERS AT SOUTH ASIA ECONOMIC SUMMIT

The project collaborated with South Asian Association for Regional Cooperation (SAARC) and the South Asia Watch on Trade, Economics, and Environment (SAWTEE) to establish a multi-perspective workshop titled "Strengthening Rural Economics Through Innovations and SMEs" on November 16, 2017 in Kathmandu, Nepal. The presenters included project-supported entrepreneur, Moushumi Shrestha, and other regional innovators. William Sparks, project director, shared lessons learned from the project on bringing innovations to market and raised awareness about trade barriers affecting regional exchange of innovation.

ADDRESSING TRADE BARRIERS FOR BRINGING REGIONAL INNOVATIONS TO CAMBODIA

The project facilitated a dialogue among private sector actors and government officials to address trade barriers that keep innovations, such as Pest Exclusion Nets and Drying Beads, from reaching smallholder farmers in Cambodia. The 20 participants raised the issues of taxation, illegal import of products which creates unfair competitiveness, and farmer learning that encourages adaptation. Dr. Chan Saruth, Director of Agriculture Engineering from the Ministry of Agriculture Cambodia, committed to ongoing dialogue between the public and private sector to continue informing the Government of Cambodia of market access issues.

SAARC CHAMBER OF COMMERCE MOU : IMPROVING CROSS-BORDER LINKAGES

A memorandum of understanding (MOU) was signed with SAARC Chamber of Commerce on March 15, 2018 with a common goal to identify, screen, and support the dissemination of agribusiness innovations. Initially, the two organizations seek to launch a SAARC-based innovation discovery challenge. Then, the project and the chamber will seek to engage private sector organizations and stakeholders across the region to provide cross border mentoring and market linkages for the winning innovations across the eight participating SAARC countries of Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan, and Sri Lanka.

GOVERNMENT ENGAGEMENT: ADDRESSING TRADE BARRIERS IN NEPAL

A roundtable meeting was conducted in January 2018 in Kathmandu to discuss different issues in technology innovation adoption and its trade dimensions. These topics included import, agro technology, safety, extension services, postharvest loss, mechanization, nutrition, capacity building, subsidy prioritization, land consolidation, contractual farming, ICTs in agriculture, value chain, investment, intellectual property rights, and insurance. The event was organized by SAWTEE as a partner of the project. Included in this meeting was a feedback session from concerned stakeholders on the study entitled "Enabling environment for agriculture innovation and technology transfer and adoption: policy, legislation and practice." Attending this session were representatives from the National Planning Commission, National Peasant's Commission, Ministry of Commerce, National Agriculture Research Council, Department of Agriculture, private sector and independent entrepreneurs.

CAMBODIAN INPUT SUPPLIERS RAISED IMPORT DUTY CONCERNS

A group of input suppliers came together to identify business challenges on taxation to the government through a project-supported agriculture forum on January 3, 2018. Input materials are currently taxed up to 40%, raising the cost of production and creating barriers for farmers to invest in new technologies. Thus, the input suppliers decided to group together under facilitation of the project to formally define the business challenges and identify potential solutions with the Minister of Agriculture. As a result, the Minister suggested that the input supply importers work with his staff to list agricultural materials or machinery for duty free import.

GOVERNMENT ENGAGEMENT: ADDRESSING TRADE BARRIERS IN BANGLADESH

The project continued consultation meetings with national agencies such as the Ministry of Commerce, Ministry of Agriculture, and the Public Private Partnership Authority. The project also met with regional bodies, including the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and the SAARC Agriculture Centre. All of the bodies emphasized their commitment to collaborate on addressing trade barriers, including a reduction in import duties and support in facilitating promotion of new innovations. The project also discovered that prior project-supported training on ISPM 38 has led to the Ministry of Agriculture to improve current quarantine operations and to propose a revision to the national quarantine rule.

PROJECT SHARES TECHNOLOGY APPROACH AT LOWER MEKONG INITIATIVE

The project director presented at the 11th Lower Mekong Initiative regional working group meeting in Nay Pyi Taw, Myanmar. On the first day, he shared the project's three stages of Source-Validate-Market for technology transfer to representatives of Cambodia, Laos, Myanmar, Thailand, Vietnam, and Association of Southeast Asian Nations (ASEAN). On the second day, Mr. Sparks facilitated a panel on market-oriented agriculture that included representatives from the U.S. Department of Agriculture; Myanmar Ministry of Agriculture, Livestock, and Irrigation; and, the Asia Pacific Seed Association.

PROJECT PRESENTS AT SAARC PANEL TO ALL MEMBER DELEGATE

The project participated in the SAARC Agriculture Center stakeholder coordination meeting in Nepal on April 6-7. The project director participated on a panel to share project learnings on scaling up technology in South Asia. Delegates from all eight SAARC member countries – Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka – attended the session. He shared the project's work on sourcing innovations that not only improve productivity, but also have a positive impact on environmental conditions, women empowerment, and youth engagement. The project continues to showcase USAID Feed the Future's work in scaling up regional innovations and to develop additional partnerships.

NEPAL GOVERNMENT ENDORSES PROJECT INNOVATION

After making a very close observation during the demand feeder testing phase in the town of Rupandehi, the Prime Minister Agricultural Modernization project (PMAMP) has ordered 45 demand feeders for incorporation into their demonstration project. Shreenagar Agro Farm, a project grantee and a private sector firm that facilitated the demand feeder testing, will deliver the requested demand feeders to PMAMP within the fish production zone also located in Rupandehi. Farmers and other stakeholders have shown interest in this technology and appreciate the results of saving feed while increasing the growth of the fish. The project continues to work with local organizations such as Shreenagar to facilitate the dissemination of technologies that improve rural communities in South and Southeast Asia.

DEFINING CREDIT PROCEDURES FOR TECHNOLOGY ADOPTION IN NEPAL

The project has reached an agreement with Global IME Bank of Nepal to provide low-interest loans to smallholder farmers who seek to purchase innovations endorsed by the project. The project has shared the careful review process that technologies undergo to be validated by Kasetsart University and other partner organizations. In turn, the bank has expressed a desire to support the dissemination of these technologies into rural communities through loans as low as five percent. The project is currently defining the credit policy and procedures of the loan program, including the roles of bank loan officers and private sector technology retailers, to provide this much needed liquidity to the technology ecosystem.

Global IME Bank
ग्लोबल आइएमई बैंक लि.
The Bank For All

Component 4: Partnering for Impact

Overview

Over the past year, the project continued to build and strengthen strategic partnerships with development organizations and private sector actors to develop a regional network that fosters new technologies and innovative practices in South and Southeast Asia's emerging markets. The project has defined technology innovations and made market linkages with other US Government-funded development projects. The project has also collaborated with impact investors and their networks, resulting in over $3 million raised this year. The project continues to focus on activities that attract investment into promising agricultural entrepreneurs and innovators in Asia's frontier markets.

Linking to USAID/USDA projects

BANGLADESH NOBO JATRA

The project met with the USAID-funded Nobo Jatra management team in Bangladesh, composed of WorldVision, Winrock, and the World Food Programme. The project attended a Nobo Jatra planning session to showcase the various innovations. Upon further discussion, three innovations were identified as being most relevant to the goals of the project: Energaia with the spirulina production, Amar Desh Amar Gram with the eShop portal, and Grameen Intel with the soil tester. The project is currently collaborating with the Nobo Jatra team to define scaling up activities involving their farmer groups in the southern part of Bangladesh.

NEPAL KISAN II

The project met with the leadership team of the USAID-funded KISAN II project in Nepal. The project provided guidance to private sector partners in developing a concept note to collaborate with the KISAN II project to achieve their development objectives. Private sector applicants included Shreenagar, Nepal Thopa Sinchai, G7 Agriculture, and Modern Agro Technology to expand the use of pest exclusion nets and other improved technologies within KISAN II project areas.

CAMBODIA HARVEST II

The project supported two technologies in submitting applications to the USAID-funded Harvest II project in Cambodia. Harvest II is seeking to engage buyers by strengthening their supply chains. Pest exclusion nets reduce use of pesticides, improve quality, and allow farmers to shift harvesting seasons to non-peak periods. All of these are desirable attributes in products for buyers. AgUnity helps farmers govern their production plan to meet the timing, quality, and volume demands of buyers. Our project assisted these two innovations to align their technologies with the goals of Harvest II.

LAOS CLEAN

The project facilitated several meetings between TESCO's head of purchasing for Thailand operations and the management team of the USDA-funded CLEAN project in Laos. TESCO has shared their buying expectations, including quality specifications and delivery timing. The CLEAN project plans to conduct a trial delivery of cabbage. Our project is seeking to support the activity by identifying innovations that can be incorporated into the supply chain that will assist farmers in meeting the quality specifications of TESCO.

SUCCESS STORY

THREE STEPS TO $3 MILLION

Could algae address the coming food crisis and provide additional income for women? A European investment firm answered that question with a resounding 'Yes!' with their $3 million stake into EnerGaia, a spirulina cultivation technology firm based in Thailand. To bring this critical funding to fruition, the project worked closely and carefully with EnerGaia through three stages of support: validity, viability and visibility.

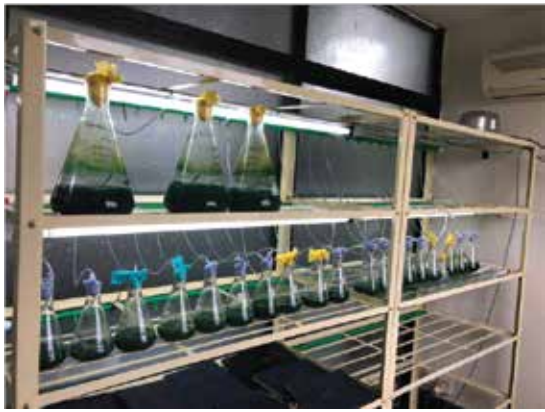
"It's been enlightening. We're a much stronger business having gone through this process. We really learned how to become an investable business."

Saumil Shah, Founder and Managing Director of EnerGaia

Saumil Shah (right) of EnerGaia receives the activity's Tech4Farmers Challenge. Award from Kipp Sutton, USAID/RDMA.

Validity

For all potential technologies under consideration, the project conducts a validation assessment to ensure that innovations are technically proven and that there is a reasonable business model for adoption. The project works closely with Kasetsart University in Thailand and their network of regional university partners to conduct these assessments. Spirulina is the dried biomass of a high protein-concentrated algae that can be used for human consumption and animal feed. A single tablespoon contains twice the amount of protein as beef steak, a food that requires significantly more natural resources for production. Spirulina is also rich in magnesium, potassium and iron. Through EnerGaia's home-based production system, a woman in Bangladesh can earn $1,080 per year (Bangladesh household income per capita was $601 in 2016) from nine hours of work per week. From this assessment, the project selected EnerGaia as an innovation to support for expansion into Bangladesh.



Sher-e-Bangla Agricultural University algae laboratory for spirulina production

Viability

To attract investment, the project collaborates with an innovator to demonstrate viability that stands out from the myriad of technologies active in other incubator and accelerator programs. Through Winrock International's long legacy of work in Bangladesh, the project was able to engage the broader technology ecosystem to support the transfer of technology from Thailand. Sher-e-Bangla Agricultural University agreed to establish a laboratory to support algae culture development, conduct scientific studies and test potential improvements to yield, such as low-cost wire mesh cages. The project facilitated the business registration of EnerGaia in Bangladesh, port clearance for an initial shipment of 615 tanks and an agreement with a local firm to oversee the initial distribution to 100 rural women-led households. The project also collaborated with Bank Asia to establish a microfinance program to enable rural households to acquire the production tanks and initial supply of spirulina culture. The project recently engaged a commercial organic fertilizer supplier to support EnerGaia's ambition to produce a completely organic product.

Saumil Shah (fourth from left) of EnerGaia receives award at Fish 2.0.

Visibility

With a validated product and a viable market, the project worked with EnerGaia to increase their visibility to the regional and global investment communities. The project began this exposure by hosting regional technology forums in Bangladesh, Cambodia, Nepal and Thailand. The project also leveraged buy-in from the U.S. Department of State to collaborate with Fish 2.0 Global Sustainable Seafood Business Competition, an American-based seafood investment forum held at Stanford University. In this collaboration, an innovation track was established for Southeast Asia technologies with an independent judging panel. This judging panel selected EnerGaia as a winner and provided a global platform for them to share their technology with the wider industry. One of the judges — a European impact investor — contacted the project to conduct a due diligence of EnerGaia for direct investment. After multiple rounds of dialogue and analysis, the firm is in the processing of making a $3 million investment into EnerGaia with part of the funds being used to facilitate their expansion into Bangladesh. The project's past collaboration and ongoing support with EnerGaia was a major factor in making this investment.

With this funding, EnerGaia can confidently move towards their goal of employing thousands of rural women in Bangladesh in the production of spirulina. EnerGaia is also encouraging women to keep a portion of the spirulina for home consumption to provide much needed protein for growing children. Through validity, viability and visibility, USAID's Feed the Future investment in the Asia Innovative Farmers Activity has attracted private sector investment to continue the expansion and sustainability of a food product vital for the economic and social welfare of rural households.

"I would like to thank the Feed the Future Asia Innovative Farmers Activity for all the support provided to EnerGaia. I hope it will continue in the future and help us grow the new industry of spirulina production in Bangladesh and therefore create thousands of jobs and eventually help fight malnutrition through spirulina consumption in Bangladesh."

Ehsanul Karim, General Manager
of EnerGaia Bangladesh

ENGAGING INVESTORS AT AVPN CONFERENCE

The project showcased innovations at the Asian Venture Philanthropy Network (AVPN) annual conference in Singapore. AVPN is a funder network based in Singapore committed to building a vibrant and high impact social investment community across Asia. Earlier this year, the project registered as an innovation supporter within AVPN and has been featuring various innovators to the broader investment community through the AVPN platform.

At the conference, the project participated in sessions that shared best practices and reflected on the importance of strategic, collaborative, and outcome-focused approaches to social investing. The project met with many investors and stakeholders to identify partners that could support the scale-up of innovations sourced and validated by the project.

MOU SIGNED WITH BANGLADESH VENTURE CAPITAL

The project signed an MOU with Bangladesh Venture Capital Limited (BVCL) to improve the identification and scale-up of agricultural technologies in Bangladesh. In this signing ceremony, the project invited innovators identified by the project to share their innovations. This included ADAG, Grameen Intel, Energaia, mPower, Oggro Ventures, and Waste Agro. BVCL and its collaborative partner, Daffodil International University, explained their planned support mechanism to the prospective innovators for scaling up technologies.

BVCL is a platform that connects entrepreneurs and investors. It was formed to provide funding for new business ventures. Aiming to make an investment ecosystem for innovators based in Bangladesh, BVCL seeks to foster a healthy economic culture for all the stakeholders. The MOU signing was also featured in local news outlets, including United News of Bangladesh, nTV, and Agrinews24.com.

William Sparks, Jenjira Namjaturas, Dr. Kim Fooyontphanich

MANAGEMENT AND ADMINISTRATION

With the notification that there would not be additional funding for the project, the team worked to engage external partners and activities to continue collaboration with the innovators after the end of the project. The project conducted outreach meetings to US-funded projects in the region to share innovations and to identify ongoing collaboration opportunities between these technologies and the projects. The project also developed relationships with impact investors and their networks, resulting in over $3 million raised. The project discontinued staff presence in Cambodia in order to focus resources on the successes being realized in Bangladesh and Nepal.

Further, the project developed the sustainability component of the project. Working closely with the USAID regional mission, the project has designed a market dissemination channel for innovations. This new channel will build on the investment by USAID into the technology ecosystem. The project has hired a consultant to assist in the design of a sustainable stand-alone entity to manage this new channel and to continue the sourcing, validating, and marketing of technologies that has been pioneered by this project. The results of this consulting assignment and the proposed structure of this entity will be presented to USAID in the first quarter of the next operating year.

ENVIRONMENTAL COMPLIANCE

The project conducted an environmental assessment of technologies and completed an Environmental Documentation Form (EDF) for these technologies. Technologies included in this assessment were all innovations selected under the Tech4Farmers 2.0 Challenge and one technology still undergoing testing from the initial Tech4Farmers 1.0 Challenge. The EDF was documented to indicate that all technology validations were screened as Very Low Risk due to assessments being primarily limited to field observations and controlled lab assessments. As no technologies were determined to be of moderate or high risk, no environmental mitigation and monitoring plans are required. However, the project continues to monitor all activities in the workplan and sub-agreements for any changes in this risk assessment.

INTEGRATION OF STIP, GENDER, RESILIENCE, AND YOUTH

STIP and Resilience

The essence of the project is science, technology, innovation, and partnerships. The project collaborates with entrepreneurs to leverage advances in science and technology into viable agricultural innovations that improve rural livelihoods. The project continues to expand partnerships with the private sector, universities, and venture capitalists to build a strong support system that increases the viability of innovators.

The very nature of working with innovators to address real-world problems faced by rural communities and smallholder farmers generates viable innovations that improve the resilience of beneficiaries. By striving to ensure sustained adoption of innovations that improve efficiencies and diversify incomes, the project improves the resilience of rural communities. For example, the project is collaborating with EnerGaia in Bangladesh to develop an additional income stream for rural women through the production of spirulina.

Gender

The project pursues a gender balance both in the scouting of innovations and in the application of innovations. To an extent, the gender imbalance of existing entrepreneurs in agricultural technology is reflected in our current sourcing of innovations. We have been successful in supporting women entrepreneurs through our project, such as Sadequa Hassan Seluti from Amar Desh Amar Gram in Bangladesh.

We have been successful in engaging a gender balance in the selection of firms conducting the market validation assessment with half of the firms being led by a woman. We continue to seek and collaborate with market place actors, such as Moushumi Shrestha of Shreenagar Agro Farms in Nepal, to enhance the dissemination technologies by ensuring that the individuals representing the project fairly represent the communities we are serving.

Youth

The project continues seeking opportunities to inform, inspire, and initiate youth into the world of agricultural innovations. Building on the successful implementation of the Syngenta-USAID Ag Student Exchange program, the project has continued to endorse and support individual participants from this program. For example, the project supported the presentation of technical findings by a student in Nepal at a peer technical review summit in Bangkok.

The project has collaborated with the young founders and employees of those technologies sourced and validated by the project, and continues expanding engagement of these youth through the marketing of these innovations into rural communities throughout Asia.

PARTNER ANALYSIS

The project continues to benefit from the collaboration of Kasetsart University (KU), especially in their role of validating innovations. KU has been responsive and timely in all of their technical activities and technical reporting. Further, KU brings an impressive array of technical expertise across hundreds of technical fields. Having an embedded staff member on the project team has made the collaboration seamless in coordinating this critical support.

The project continues to work with KU to improve administrative elements of managing the sub-award. KU has been very collaborative with the project to ensure proper documentation and reporting on administrative and financial elements. In all, KU remains a supportive and active partner.

PARTNER LEVERAGE

The project has leveraged over $3 million dollars in investments and support for project activities and innovations. The project engaged with Fish 2.0, the Packard Foundation, and Walton Family Foundation to establish a Southeast Asia track for the identification of promising innovations. This cooperation resulted in the submission of 22 applications and the invitation of six organizations who participated in the final competition hosted in the USA. EnerGaia, a technology identified and endorsed by the project, was selected as the winner. One of the participants in Fish 2.0, a European impact investor, followed up with the project to seek direct investment into EnerGaia and has since committed $3 million.

The project has joined AVPN to attract additional investors. The project continues to conduct outreach on behalf of innovators to national and regional investors in an effort to raise grants, loans, and direct investment capital. This outreach and matchmaking will remain a primary activity until the end of the project.

ANNEX I: TARGETS AND ACTUALS BY PERFORMANCE INDICATORS

Summary

Indicator Number	Indicator Name	Annual Target	Q1 Actual	Q2 Actual	Q3 Actual	Q4 Actual	Year 3 Actual # / %	LOP Target	LOP Actual # / %
1.1.1 custom	Number of farmers and others (direct and indirect beneficiaries) who have applied improved technologies or management practices with USG assistance (Outcome)	1,500	0	0	165	0	**165** 11%	18,000	**333** 1.8%
1.1.2 FTF EG.3.2-1	Number of individuals who have received USG-supported short-term agricultural sector productivity or food security training (Output)	Total 1,000 Women (600)	126 (25)	1,101 (217)	33 (19)	1,688 (1,252)	**2,881** 288% **1,486** (247%)	2,385 (1,431)	**4,358** 181% **(2,044)** (142%)
1.1.3 FTF EG.3.2-20	Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied improved organization-level technologies or management practices with USG assistance (Outcome)	12	7	6	4	1	**7** 58%	30	**29** 96%
1.1.4 FTF EG.3.2-4	Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG food security related organizational development assistance (Output)	25	22	6	7	87	**112** 448%	175	**228** 130%
1.2.1 FTF EG.3.2-7	Number of technologies or management practices under research, under field testing, or made available for transfer as a result of USG assistance (Output)	6	1	1	4	5	**6** 100%	12	**13** 108%
	Phase I	*0*	*0*	*0*	*0*	*1*	*1*	*2*	*6* *250%*
	Phase II	*0*	*1*	*1*	*1*	*1*	*1*	*2*	*3* *150%*
	Phase III	*11*	*0*	*0*	*3*	*4*	*10* *90%*	*12*	*12* *100%*
1.2.2 custom	Number of technologies or management practices which are female supportive, youth supportive or designed to reduce risk or improve resilience to climate change in one or more phases of development (Output)	3	0	0	2	2	**2** 66%	6	**7** 116%

Indicator Number	Indicator Name	Annual Target	Q1 Actual	Q2 Actual	Q3 Actual	Q4 Actual	Year 3 Actual # / %	LOP Target	LOP Actual # / %
	Female/Phase III	*0*	*1*	*1*	*2*	*4*	*4*	*2*	*6 300%*
	Youth/Phase III	*2*	*0*	*0*	*0*	*0*	***0*** *0%*	*2*	*2 100%*
	Resilience/Phase III	*0*	*1*	*1*	*2*	*4*	*4*	*3*	*6 200%*
1.2.3 custom	Number of technologies or management practices proposed, accepted or under incubation through USG supported regional challenge initiative (Output)	0	0	0	0	0	**0**	60	**91** 151%
	Accepted	*0*	*0*	*0*	*0*	*0*	*0*	*18*	*37 205%*
	Awarded	*0*	*0*	*0*	*0*	*0*	*0*	*12*	*13 108%*
1.2.4 custom, tracking only	Value of sales of technologies in new markets (Outcome)	n/a	n/a	n/a	n/a		n/a	n/a	n/a
1.2.5 custom	Average percentage of income increase potential of supported technologies (Output)	0	0	0	0	0	**0**	20	**34** 170%
2.1.1 custom RDMA IR S.3	Number of innovative approaches identified by RDMA that are funded or adopted by USAID or bilateral missions or other public or private funders (Outcome)	0	1	0	2	0	**3**	2	**5** 250%
2.1.2 custom	Number of case studies and other materials developed and disseminated to facilitate learning, adoption or scale-up (Output)	35	6	21	0	2	**29** 82%	45	**55** 122%
	Technology adoption	*30*	*6*	*21*	*0*	*0*	*27 90%*	*40*	*53 132%*
	Policy making	*5*	*0*	*0*	*0*	*2*	*2 40%*	*5*	*2 40%*
2.1.3 custom	Number of stakeholders in cross border linkages established by the Project (Output)	14	13	10	2	2	**27** 192%	101	**157** 155%
	Education	*0*	*0*	*0*	*0*	*0*	*0*	*50*	*57 114%*
	Research	*6*	*0*	*2*	*0*	*0*	*2 33%*	*20*	*22 110%*
	Commercial	*8*	*13*	*8*	*2*	*2*	*25 312%*	*31*	*78 251%*

Indicator Number	Indicator Name	Annual Target	Q1 Actual	Q2 Actual	Q3 Actual	Q4 Actual	Year 3 Actual # / %	LOP Target	LOP Actual # / %
2.1.4 Custom	Number of platforms, networks and organizations participating in a regional or national hub (Output)	0	29	15	3	0	**12**	363	**371** 102%
	Platform Network	*0*	*29*	*12*	*3*	*0*	*9*	*6*	*13* *216%*
	Org in hubs	*0*	*0*	*0*	*0*	*0*	*0*	*354*	*355* *100%*
	Org in advocacy groups	*0*	*0*	*3*	*0*	*0*	*3*	*3*	*3* *100%*
2.1.5 Custom	Number of stakeholders participating in the regional agricultural innovation community (Output)	119,393	-	1,850,488	-	297,707	2,148,195 1799%	250,000	**2,278,802** 911%
2.2.1 FTF EG.3.1-12	Number of agricultural and nutritional enabling environment policies analyzed, consulted on, drafted or revised, approved and implemented with USG assistance (outcome)	0	1	3	1	0	**5**	10	**20** 200%
	Approved or implemented	*4*	*0*	*3*	*0*	*0*	*3* *75%*	*4*	*4* *100%*
2.2.2 custom	Number of policy forums and learning events conducted	0	4	13	3	0	**20**	26	**24** 92%
3.1.1 FTF EG.3.2-22	Value of new private sector capital investment in the agriculture sector or food chain leveraged by Feed the Future implementation (Outcome)	$0	$0	$0	$3M	$0	**$3M**	0	**$3M**
3.1.2 FTF EG.3.2-5	Number of public-private partnerships formed as a result of USG assistance (Output)	3	1	2	1	0	**4** 133%	12	**15** 125%
3.1.3 custom	Amount of funding leveraged to support the Project objectives (Output)	$94,261	$0	$0	$3,047,904	0	**$3,047,904**	$1M	**$4,028,425** 402%

Annual Disaggregated Data by Indicator

*Disaggregated data for Y3 was not included for the following indicators: 1.2.3, 1.2.4, or 1.2.5, as there was no data for Y3 or it is not applicable. In addition, disaggregated data for 2.1.5 is not included since the regional innovation community and national technology hubs have expanded to include multiple organizations, including technology innovators, private sector partners, etc. and we do not have access to their detailed disaggregated data.

1.1.1 (custom) Number of farmers and others (direct and indirect beneficiaries) who have applied improved technologies or management practices with USG assistance (Outcome)

Y3 Total	165
Shreenagar Scale-up of Demand Feeders	33 individual farmers adopting demand feeders* family member multiplier (5) * = 165 indirect and direct beneficiaries

*The family member multiplier was calculated using the average family size in Nepal (5).

The LOP total of 333 includes the removal of the 16,500 individual farmers per USAID's recommendation. The LOP total now includes 165 direct and indirect beneficiaries adopting demand feeders and 168 direct and indirect beneficiaries adopting PEN due to scale-ups by Shreenagar G Seven Agriculture Pvt. Ltd., respectively.

1.1.2 FTF EG.3.2-1 Number of individuals who have received USG-supported short-term agricultural sector productivity or food security training (Output)

Y3 Total		2,881
Age	<18	21
	18-35	1,281
	36-59	1,490
	≥ 60	73
	Unknown	16
Sector/Gender	Producer/Male	790
	Producer/Female	1,329
	Producer/Unknown	1
	Private/Male	356
	Private/Female	31
	Government/Male	15
	Government/Female	2

Y3 Total		2,881
	CSO/Male	233
	CSO/Female	124
Country	Bangladesh	97
	Myanmar	1
	Nepal	2,779
	Australia	1
	Vietnam	2
	India	1
Training Type	Training for Technology Testing	104
	Training for Other Purpose	2,777
Tech Type	Cultural Practices	411
	Aquaculture Management	846
	Pest Management	2,860
	Disease Management	9
	Soil-related Fertility and Conservation	9
	Irrigation	9
	Marketing and Distribution	9
	Post-harvest Handling and Storage	9

The high number of female Nepal farmers trained in Year 3 is due to the 86 PEN trainings conducted by Modern Agro Technology.

1.1.3 FTF EG.3.2-20 Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied improved organization-level technologies or management practices with USG assistance (Outcome)

Y3 Total		7
Country	Bangladesh	5
	Nepal	2
Organization Type	Producer Group	2
	Women's Group	4
	Private Enterprise/Company	1

In Year 3, six producer and women's groups in Nepal and Bangladesh, and one private enterprise, GME Agro, continued to apply and adopt PEN technology.

1.1.4 FTF EG.3.2-4!Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG food security related organizational development assistance (Output)

Y3 Total		**112**
Country	Bangladesh	11
	Cambodia	4
	Myanmar	1
	Nepal	90
	Thailand	3
	Vietnam	1
	United States	1
	Australia	1
Organization Type	Producer Group	61
	Women's Group	27
	Private Enterprise/Company	19
	Trade/Business Association	5
New/Continuing	New	87
	Continuing	25

1.2.1 FTF EG.3.2-7 Number of technologies or management practices under research, under field testing, or made available for transfer as a result of USG assistance (Output) & **1.2.2** (custom) Number of technologies or management practices which are female supportive, youth supportive or designed to reduce risk or improve resilience to climate change in one or more phases of development (Output)

		1.2.1 Number of technologies or management practices under research, under field testing, or made available for transfer as a result of USG assistance			1.2.2 Number of technologies or management practices which are female supportive, youth supportive or designed to reduce risk or improve resilience to climate change in one or more phases of development		
No.	**Technology**	**Phase I- Under Research**	**Phase 2- Under Field Testing**	**Phase III- Made Available**	**Female Supportive**	**Youth Supportive**	**Resilience Supportive**
1	Rhino Research- Drying Beads						
2	SunFarmer- Solar Powered Water Pump			X	X		X
3	EnerGaia- Spirulina system			X	X		X
4	Farm Tech- Rice and Soybean Dryer			X			
5	Nutrition Technologies- Fishmeal Alternative			X			
6	Pest Exclusion Net (PEN)			X	X		X
7	eFishery Feeder						
8	Demand Feeder		X	X			
9	Grameen Intel- Digital Soil Testing Kit			X			X
10	Amar Desh Amar Gram (ADAG)- eShop			X	X		
11	mPower- Decision Support Service (DSS)			X			
12	Gham Power- Off Grid Bazaar	X					
13	AeroRoots			X			
	Year 3 Total:	**1**	**1**	**10**	**4**	**0**	**4**

2.1.1 (custom!RDMA IR S.3) Number of innovative approaches identified by RDMA that are funded or adopted by USAID or bilateral missions or other public or private funders (Outcome)

Y3 Total		3
Tech Type	Cultural Practices	1
	Aquaculture Management	1
	Post-harvest Handling and Storage	1
Funding Entity Type	For Profit Investment	2
	Other Donors	1

In Year 3 adoptions/funding included Aqua-Spark's investment in EnerGaia, the Nepal Prime Minister Agricultural Modernization Project adoption of Demand Feeder, and Metal, Inc. investment with Rhino Research.

2.1.2 (custom) Number of case studies and other materials developed and disseminated to facilitate learning, adoption or scale-up (Output)

Y3 Total		29
Tech Type	Cultural Practices	4
	Aquaculture Management	2
	Pest Management	2
	Disease Management	1
	Irrigation	3
Country	Bangladesh	1
	Cambodia	1
	Nepal	23
Material Type	Marketing Materials	27
	Policy Case Study	2

2.1.3 (custom) Number of stakeholders in cross border linkages established by the Project (Output)

Y3 Total		27
Linkage Focus	Research	2
	Commercial	25
Stakeholder Sector	Private	19
	Government	6
	CSO	2

2.1.4 (custom) Number of platforms, networks and organizations participating in a regional or national hub (Output)

Y3 Total		12
Country	Bangladesh	8
	Cambodia	4
Organization Type	Private Enterprise/Company	3
	Trade/Business Association	3
	Government Organization	4
	Non-Government Organization (CSO)	1
	Platform or Network (Other)	1
Hub Type	Advocacy/Policy Maker Group	12

2.2.1 FTF EG.3.1-12!Number of agricultural and nutritional enabling environment policies analyzed, consulted on, drafted or revised, approved and implemented with USG assistance (outcome)

Y3 Total		5
Policy Area	Agricultural input policy (e.g. seed, fertilizer)	5
Policy Level/Scope	National	5
Process/Step	Drafting Revision Complete	3
	Approved	1
	Implemented	2
Policy Type	Laws	1
	Regulations	1
	Administrative Procedures	2
	Institutional Arrangements	1

2.2.2 (custom) Number of policy forums and learning events conducted

Y3 Total		20
Event Type	Advocacy Group Forum	3
	Policy Maker Forum	17

These 20 policy forums and advocacy groups included 131 individuals from 47 organizations.

3.1.1 FTF EG.3.2-22!Value of new private sector capital investment in the agriculture sector or food chain leveraged by Feed the Future implementation (Outcome)

Y3 Total	$3,000,000
Aqua-Spark investment in EnerGaia	$3,000,000

3.1.2 FTF EG.3.2-5!Number of public-private partnerships formed as a result of USG assistance (Output)

Y3 Total	4
TESCO	To identify innovations that can be incorporated into the supply chain that will assist farmers in meeting TESCO's quality specifications
SAARC Chamber of Commerce	To identify, screen, and support the dissemination of agribusiness innovations.
Stage Six	To assess, develop, and expand agricultural social enterprises.
Bangladesh Venture Capital	To improve the identification and scale-up of agricultural technologies in Bangladesh

3.1.3 (custom)!Amount of funding leveraged to support the Project objectives (Output)

Y3 Total	$3,047,904
Aqua-Spark investment in EnerGaia	$3,000,000
Lal Teer investment in Rhino	$47,904